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Sakai

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[54] **ANIMAL CAGE**

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[51] **Int. Cl.**[7] **A01K 1/03**

[52] **U.S. Cl.** **119/452**; 119/472; 119/467; 119/481; 119/417

[58] **Field of Search** 119/472, 452, 119/416, 475, 467, 481, 459, 417

[56] **References Cited**

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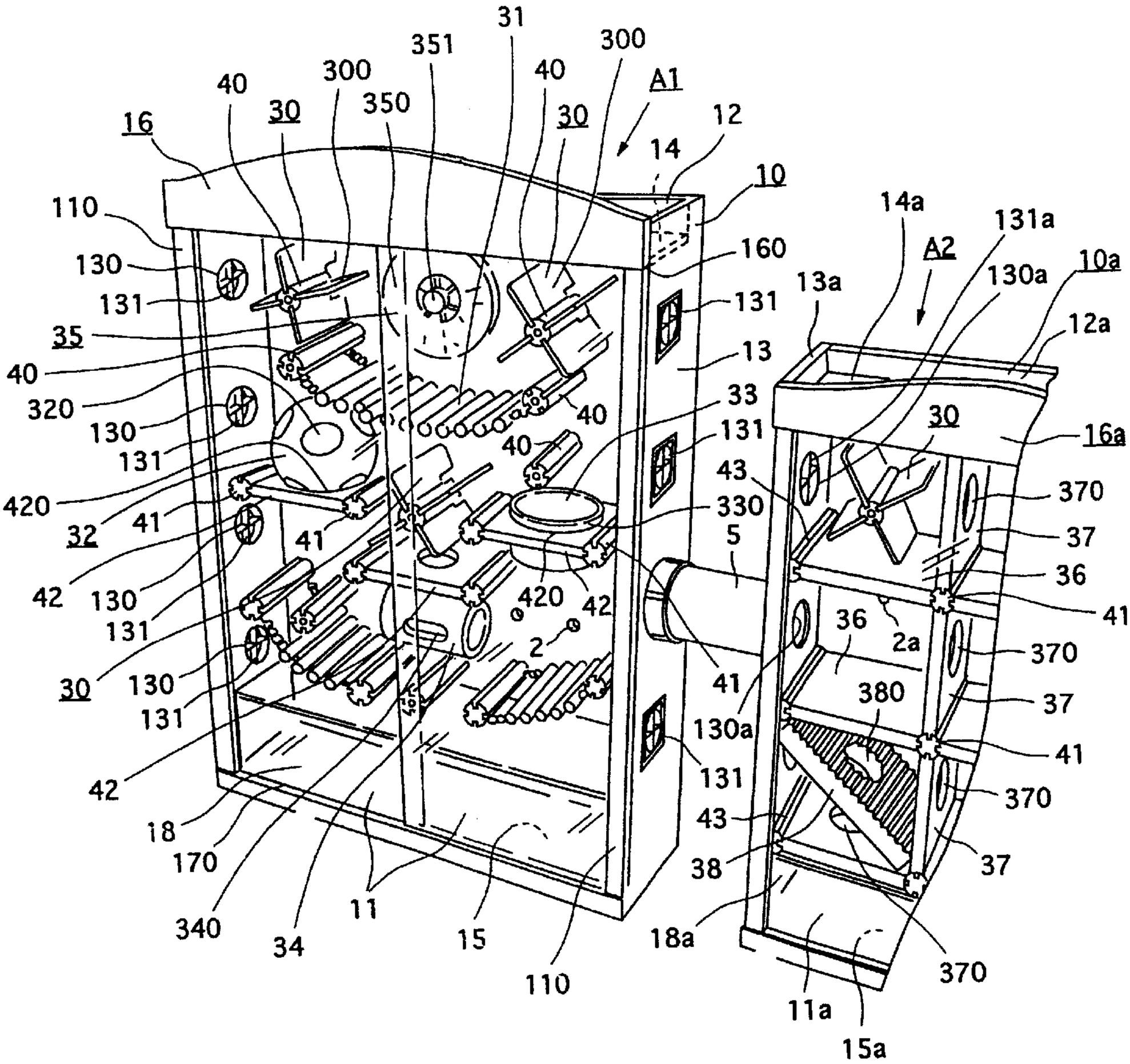
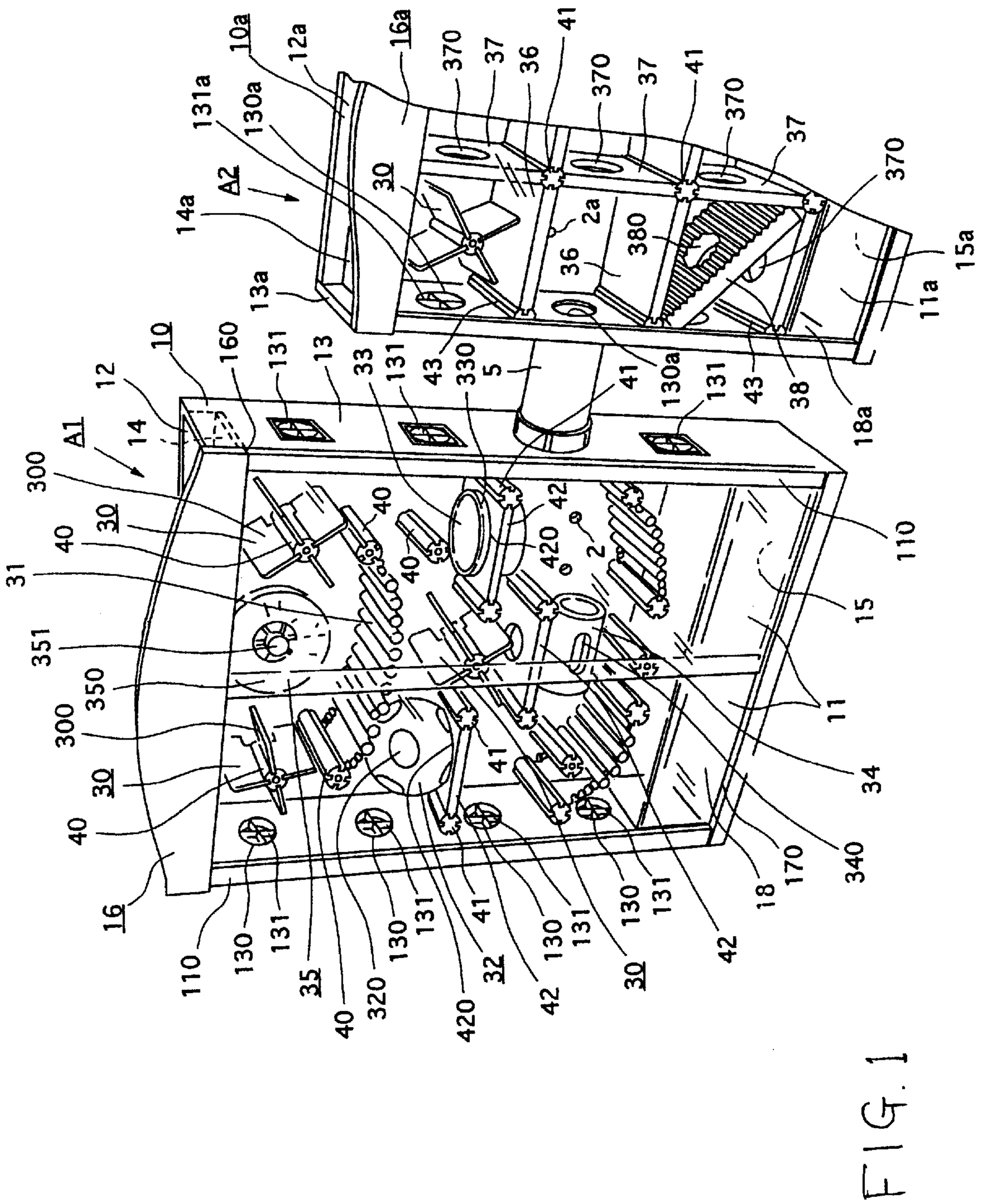
[57] **ABSTRACT**

The disclosure relates to a cage for small domestic pet animals which provides space saving yet permits ready expansion in the event of pet population growth. The cage is of a hanging-up-on-the-wall type having a relatively small depth and width. It includes a rear wall having a plurality of attachment holes through which many accessories are attached to the rear wall. A plurality of openings are formed in the side walls to receive perforated blind plates for air penetration. The cage may comprise a primary and an auxiliary housing which are connected to each other through a tubular passage.

3 Claims, 3 Drawing Sheets

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43
330
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12
A1
14
300
40
31
351
350
16
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18a
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FIG. 1

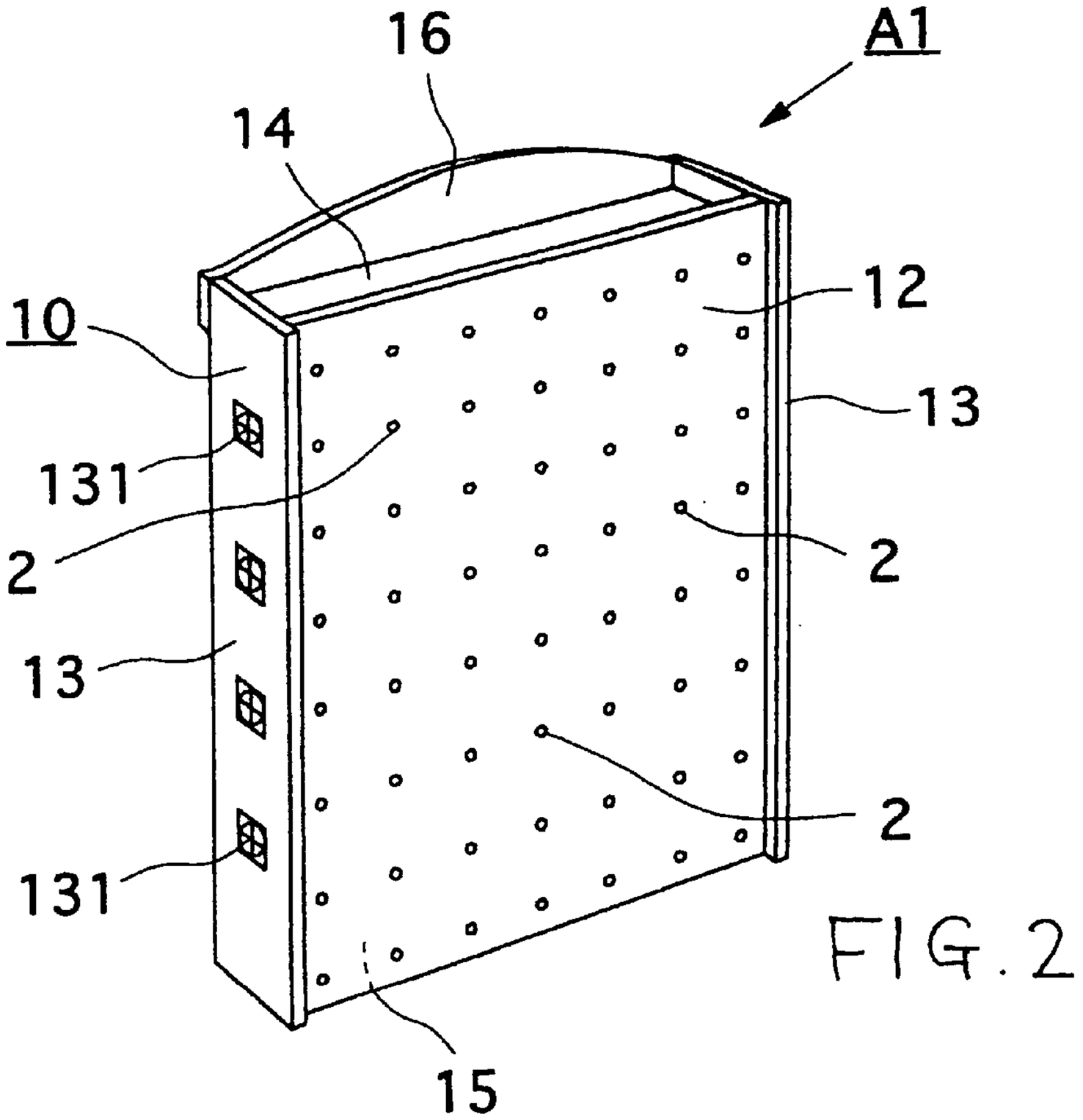

FIG. 2

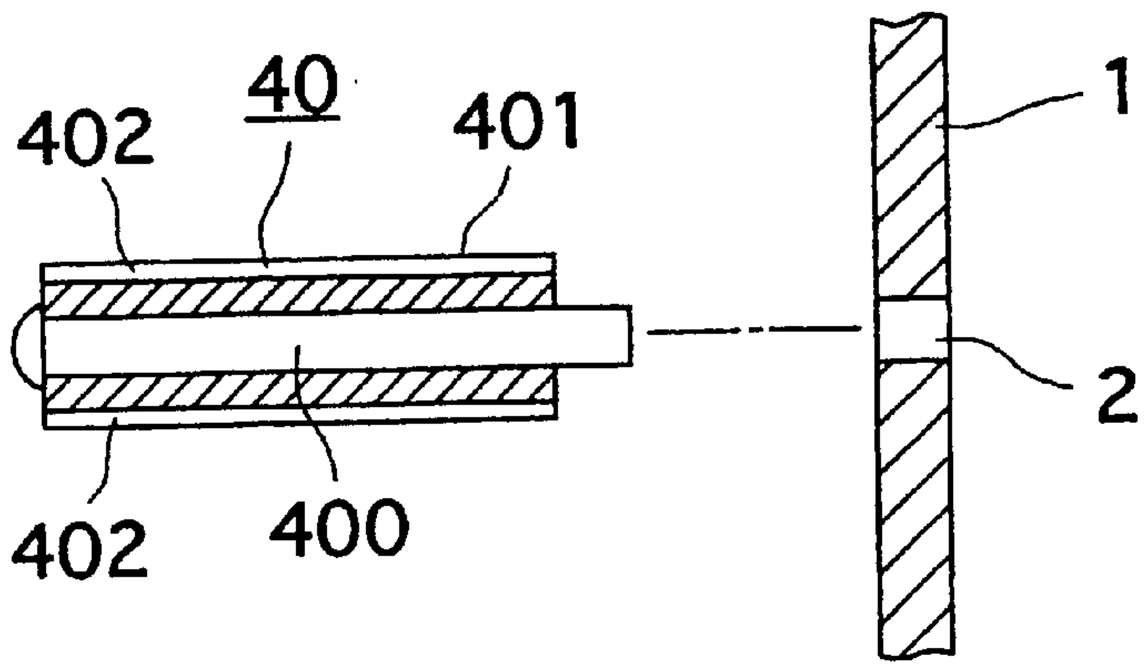

FIG. 3

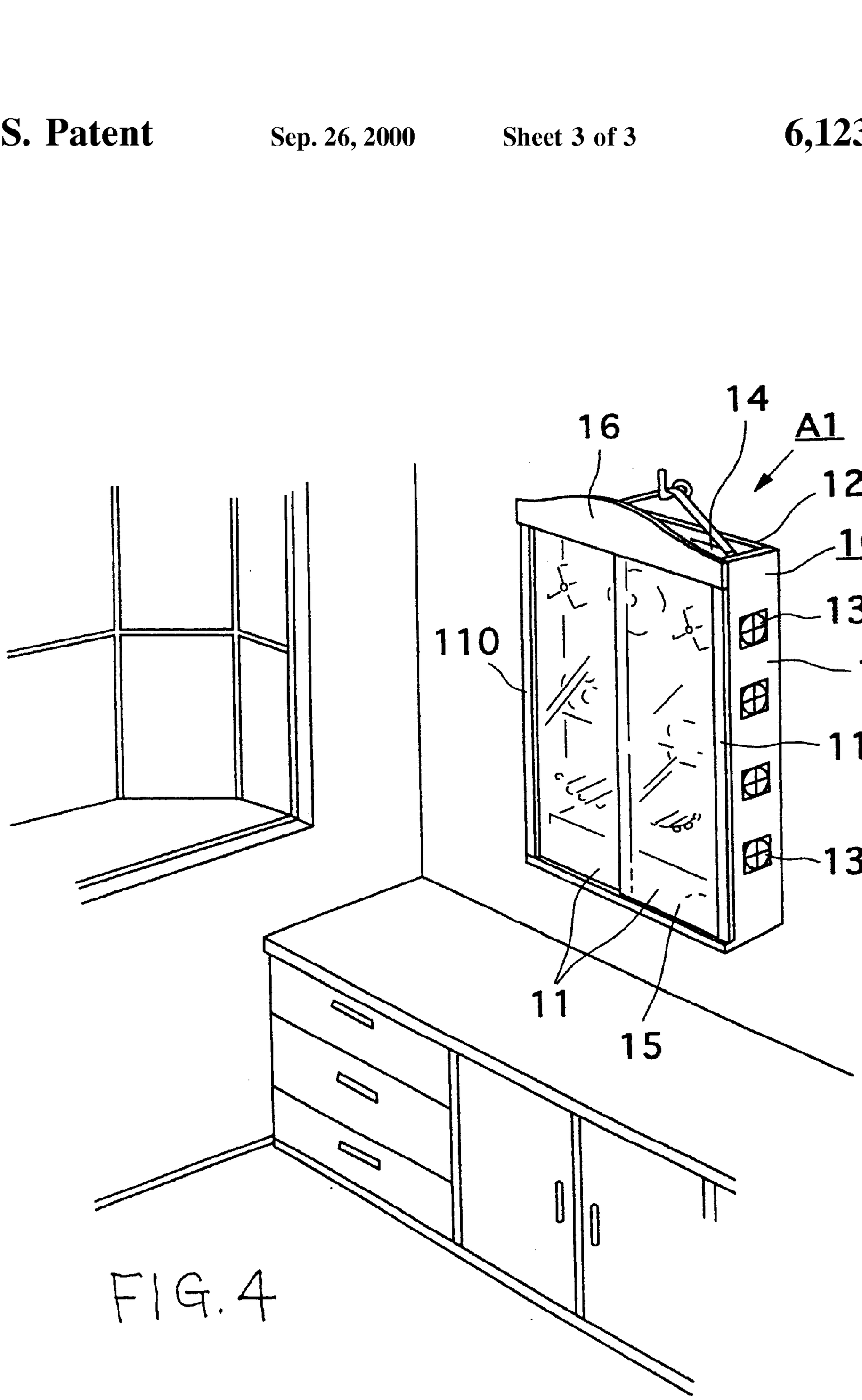

FIG. 4

ANIMAL CAGE

BACKGROUND OF INVENTION

(a) Field of the Invention

The present invention relates generally to cages for small domestic pet animals such as, for example, hamsters, gerbils and the like and, more particularly, to an animal cage which is capable of use as a hanging-up-on-the-wall type cage which provides space saving yet permits ready expansion in the event of pet population growth. The invention also relates to various kinds of accessories or means in the animal cage that permit the pet to eat, sleep, excrete waste material and exercise, the accessories being removably mounted to the rear wall of the animal cage.

(b) Description of the Prior Art

As is commonly well known, pet animals of rodent variety, namely hamsters, gerbils, etc., are maintained in various forms of enclosures. For example, hamsters or gerbils are kept in cages made of glass or transparent plastic materials and having an upwardly opening top for ready access into the enclosure.

Normally disposed in such a cage are various accessories, such as a feeder, a waterer and playing or exercising means for animals. The playing or exercising means are needed because animals maintained in such a confined environment become listless, less active, and fail to provide the excitement and novelty for the hobbyst as when originally purchased.

Disadvantageously, these conventional animal cages are generally bulky, namely, they have considerable depth and width because of the large space required to arrange various accessories horizontally on the bottom of the cage. In other words, the conventional type of cage takes up comparatively large space when it is placed on the floor, table or the like. This type of cage is not adaptable to being hung up on the wall because it may project too much from the wall.

Another disadvantage associated with the conventional type of cage is that the cages themselves are autonomous and independent habitats so that they cannot allow ready expansion so as to accommodate future pet population growth. In the event of such pet population growth, it will be necessary to purchase another cage of greater size.

SUMMARY OF THE INVENTION

Accordingly, it is an object of the present invention to provide a novel animal cage or habitat which is capable of use as a hanging-up-on-the-wall type cage which takes up less space for placement.

It is another object of the present invention to provide a novel animal cage or habitat which permits ready expansion in the event of pet population growth.

It is a further object of the present invention to provide an animal cage or habitat in which a plurality of accessories such as a feeder, a waterer, playing or exercising means for animals are arranged vertically on the rear wall of the cage by means of a novel attachment mechanism including a plurality of rotary shafts.

It is a still further object of the present invention to provide a novel rotary shaft for removably attaching an accessory to the rear wall of the cage.

It is a still further object of the present invention to provide a novel animal cage or habitat comprising a primary housing and an auxiliary housing which are connected to each other by means of a tubular passage extending between both housings.

BRIEF DESCRIPTION OF THE DRAWINGS

When the above and additional objects and advantages in view, as will hereinafter appear, this invention comprises the devices, combinations and arrangements of parts hereinafter described and illustrated in the accompanying drawings of a preferred embodiment in which:

FIG. **1** illustrates a perspective view of an animal cage comprising a primary housing and an auxiliary housing which are connected to each other by a tubular passage so as to provide expanded space for animals;

FIG. **2** illustrates a rear view of the primary housing showing a plurality of attachment holes formed in the rear wall thereof;

FIG. **3** illustrates a cross-sectional view showing how a rotary shaft is used to removably mount a feeder, a waterer, a playing or exercising means or the like to the rear wall of the housing; and

FIG. **4** illustrates a typical manner in which the animal cage or habitat of the present invention is hung up on the wall.

DETAILED DESCRIPTION OF THE INVENTION

Referring now to the drawings, and more particularly to FIGS. **1–3** thereof, the present invention relates generally to an animal cage or habitat which comprises a primary housing **A1**, an auxiliary housing **A2** and a tubular passage **5** connecting both housings.

The primary housing **A1** is generally of a "box" type having an open front portion which is normally closed by a pair of door members **11** which are mounted for sliding movement to permit access into the cage. The primary housing **A1** is comprised of a rear wall **12**, two side walls **13**, a top wall **14** and a bottom wall **15**, which can be assembled easily by use of an adhesive material, screws or the like to form an upright box **10**. In a preferred embodiment of the invention, these walls **12**, **13**, **14** and **15** are made of wood but other materials such as plastic, metal or porcelain may be used to constitute the walls. The sliding door members **11** are formed of a transparent plastic material but they may be made of glass or wire mesh.

The top wall **14** and the bottom wall **15** include a pair of downwardly opening guide grooves **160** and a pair of upwardly opening guide grooves **170**, respectively. These grooves **160**, **170** are formed in the associated walls adjacent to their front ends to receive the upper and lower ends of the door members **11** for sliding movement therealong. A front top plate **16** is rigidly mounted to the front end surfaces of the top and side walls **14**, **13** to serve as a displaying or advertising means.

As best shown in FIG. **2**, the rear wall **12** has a plurality of equi-spaced attachment holes **2** formed therein which enable attaching of accessories such as a feeder, a waterer and various playing or exercising means thereto. The attachment holes **2** are through holes adapted to receive a rotary shaft such as one designated at **40** in FIG. **3**. In the preferred embodiment, the attachment holes **2** are arranged in the rear wall **12** of the housing in eight rows and seven columns to provide flexibility of attachment.

Referring back to FIG. **1**, the side walls **13** include a plurality of openings **130** which may be detachably closed by means of blind plates **131**. The blind plates **131** are preferably perforated for air penetration. Although not specifically shown, the blind plates **131** which may be formed of a hard plastic material, and the openings **130** have

associated conventional bayonet interlocking elements which permit insertion of the plate **131** into the opening **130** and a turning of the plate **131** relative to the opening **130** into a locked or unlocked condition.

Disposed in the primary housing **A1** in operative association with the bottom wall **15** is a transparent tray **18** which is adapted to remove waste material or other debris from the housing. The transparent tray **18** preferably holds sawdust, for example. Preferably, the transparent tray **18** may be detached readily from the housing **A1** by temporarily removing the door members **11** from the cage.

Each sliding door member **11** has a wooden pull plate **110** attached thereto at its outer end. These pull plates **110** enable one to slide the door members **11** relative to each other along the guide grooves **160**, **170** to close or open the front opening of the cage. It is to be noted that other types of doors such as hinged doors can be use in place of such sliding door.

Disposed in the upper portion of the primary housing **A1** at generally the same height are two rotary members **30** which serve as playing or exercising means for animals. Each rotary member **30** includes a rotary shaft **40** rotatably mounted to the rear wall **12** through the attachment hole **2**, and four planar vanes **300** rigidly mounted to the rotary shaft **40**.

As best shown in FIG. **3**, the rotary shaft **40** comprises an axle **400** having an enlarged cap, and a cylindrical member **401** through which the axle **400** extends. The cylindrical member **401** has four axially extending channels **402** which are disposed with the planes thereof offset 90 degrees relative to each other to receive the four flat vanes **300** therein.

Disposed in the upper center portion of the primary housing **A1** between the two rotary members **30** is a feeder **35** which comprises an axle **351** fixedly attached to the rear wall **12** of the housing and a disc-like feeder **350** rotatably mounted on the axle.

Disposed in the upper center portion of the primary housing **A1** but at level just below the feeder **35** is a suspension bridge **31** which is suspended by a pair of spaced rotary shafts **40** attached to the rear wall of the housing. The suspension bridge **31** is comprised of a number of bars and two cables interconnecting these bars.

Disposed in the left center portion of the primary housing **A1** is a nesting bowl **32** which serves as playing means. The nesting bowl **32** is a hollow, generally spherical body having a plurality of openings **320** for access into the inside thereof. The nesting bowl **32** is snugly received in a conforming circumferential surface of an opening **420** formed in a pedestal **42** which in turn is horizontally supported by means of two rotary shafts **41** removably attached to the rear wall **12** of the housing.

Disposed in the right center portion of the primary housing **A1** is a waterer **33** which comprises an upwardly opening cup-like member snugly received in an opening **330** formed in a pedestal **42**. The pedestal **42** is horizontally supported by two rotary shafts **42** removably attached to the rear wall **12** of the housing. The cup member of the waterer **33** may be used as a feeder. A third rotary member **30** is placed between the nesting bowl **32** and the waterer **33**.

Disposed in the lower center portion of the primary housing **A1** just below the third rotary member **30** is a pedestal **42** which has a tunnel member **34** attached to the underside thereof. The pedestal **42** is horizontally supported by two rotary shafts removably attached to the rear wall of the housing. The tunnel member **34** has a hole extending therethrough and an axially extending oblong opening **340** formed in the wall thereof.

In order to provide added space for pet animals or to cope with pet population growth, the auxiliary housing **A2** is used in association with the primary housing **A1**. The auxiliary housing **A2** is also of a "box" type having an open front portion which is normally closed by a pair of similar sliding door members **11***a*. As shown in broken-away view, the auxiliary housing **A2** also comprises a rear wall **12***a*, two side walls **13***a*, a top wall **14***a* and a bottom wall **15***a*, which can be assembled by using an adhesive material or other fastening means (not shown).

As shown, the auxiliary housing **A2** is of a multi-level construction including a plurality of floor panels **36** and a plurality of side panels **37** which are assembled by means of rotary shafts **41** to form a plurality of cells. A plurality of panel support members **43** are also attached to the side wall **13***a* of the auxiliary housing **A2** and include grooves for snugly receiving the ends of the floor panels **36** to support them horizontally. Each side panels **37** has an opening **370** for allowing animals to gain access to neighboring chambers defined by the floor panels **36** and the side panels **37**.

Disposed in the lowest chamber just above a transparent tray **18***a* is a stairway **38** which is secured in the position illustrated between the two floor panels **36** in a conventional manner. The stairway **43** has an opening **380** formed generally centrally thereof.

The tubular passage **5** is made of a transparent plastic material and is used to allow animals to move between the primary housing **A1** and the auxiliary housing **A2**. It is to be noted that the primary housing and the auxiliary housing can be connected to each other just by juxtaposing them without using such tubular passage **5**.

As seen, most of accessories such as the feeder **35**, waterer **33**, etc. can be mounted to the rear wall **12**, **12***a* of the primary and auxiliary housings **A1**, **A2** by means of the novel rotary attachment mechanism as shown in FIG. **2** and FIG. **3**. The fact that these accessories are arranged vertically on the rear wall results in significant savings in the space and depth needed for such animal cages. The animal cage can be hung up on the wall in the manner as shown in FIG. **4**.

Also, this removable rotary attachment mechanism provides increased flexibility in the positioning of various accessories on the rear wall of the cage. Removal or replacement of accessories can be effected easily by moving the sliding door to open the front opening of the cage.

The use of tubular passages **5** to connect the auxiliary housing to the primary housing will readily increase the capacity of the cage so that this expandable construction can accommodate increased pet animal population. On the contrary, if the pet population decreases, one or more of such auxiliary housings may well be disconnected from the primary housing.

In keeping up with the foregoing, it is an object of the present invention to provide a novel and improved animal cage which preferably includes but is not limited to the following advantages:

a. The cage can be used as a hanging-up-on-the-wall type cage which provides significant space saving;

b. The novel rotary removable attachment mechanism for various accessories permits positioning of such accessories vertically on the rear wall in a ready manner;

c. The use of the tubular passage makes it easy to add an auxiliary housing to the primary housing so as to accommodate pet animal population growth. It also helps animals to remain active by giving them the opportunities to move between neighboring housings.

Numerous alterations of the structure herein disclosed will suggest themselves to those skilled in the art. However, it is to be understood that the present disclosure relates to a preferred embodiment of the invention which is for purposes of illustration only and not to be construed as a limitation of the invention.

What is claimed is:

1. A cage for small domestic pet animals, comprising:

a primary housing including a transparent front portion which permits observance therethrough of animals, said primary housing having a rear wall and two side walls, one of said side walls having at least one opening formed therein;

a plurality of accessories which permit the pet animal to eat, sleep, and exercise within said primary housing;

a plurality of attachment means for removably attaching said plurality of accessories to the rear wall of said primary housing so that said accessories are arranged vertically on the rear wall;

an auxiliary housing having two side walls, one of said side walls having at least one opening formed therein;

said primary housing and said auxiliary housing being juxtaposed with each other;

tubular passage means extending between said primary housing and said auxiliary housing to connect them through said openings formed in their side walls; and,

each of said plurality of attachment means comprises an attachment hole formed in the rear wall of said primary housing and a rotary member mounted on said rear wall to rotatably support said accessory, said rotary member including an axle inserted into the attachment hole and fixedly attached to the rear wall, said axle extending through said rotary member and supporting said rotary member for rotation.

2. A cage for small domestic pet animals as set forth in claim **1** wherein said rotary shaft comprises an axle having an enlarged cap and a cylindrical member through which the axle extends, said cylindrical member having means for mounting said accessory thereto.

3. A cage for small domestic pet animals as set forth in claim **1** wherein said attachment holes are equi-spaced to form a plurality of rows and columns.

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